THE TREATMENT OF EARLY GONORRHŒA IN THE MALE.

BY

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PRICE ONE SHILLING NET.

London:
THE MEDICAL PUBLISHING COMPANY, LIMITED,
OFFICE: 22½, BARTHOLOMEW CLOSE, E.C.
1908.

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It still seems to be a perennial question as to whether gonorrhœa should be treated locally with energy in the early stages, or more or less by the expectant method. I wish, therefore, to direct attention more especially to the abortive and irrigation treatment of early gonorrhœa while it affects only the anterior urethra, that is, the canal anterior to the compressor urethræ muscle, because it is while limited to this part that the most energetic measures should be taken to prevent its spread to the highly vulnerable and complicated region of the posterior urethra and its surrounding structures.

I hold that it should be a golden rule that if treatment is sought before the disease has invaded the membrano-prostatic area all the means in our power should be used to prevent it spreading there, and that this can be accomplished in the great majority of cases by the Janet method of irrigation with permanganate of potash is an undoubted fact.

If, then, a patient comes under treatment while the disease is limited to the anterior canal, the surgeon should be able to give a pretty definite promise that he will be able to control the inflammation and that its further spread can be prevented, provided that the patient can attend when required, and that in the acuter varieties his occupation does not necessitate excessive bodily movement. Not only can the spreading inflammation be checked but recovery of the part already affected is usually rapid and uneventful.

Gonorrhœa limited to the anterior urethra presents a totally different clinical picture, both as regards the constitutional effect on the patient and the disability it occasions, from that which presents itself when the inflammatory process involves the prostatic urethra. Again, ordinary occupations do not greatly influence the treatment of the disease by irrigation when confined to the anterior canal, whereas posterior (vesical) irrigations, if undertaken at all, require the patient to be at rest in any but the chronic stages.

The involvement of the posterior urethra in the inflammatory attack is not a complication, but is the natural course of almost all acute, especially first attacks. Subacute, especially second and subsequent attacks, often do not spread there.

"As a rule the infection spreads in between 80 and 90 per cent. of the cases through the entire length of the urethra" (Taylor).

"In 163 cases of acute and chronic gororrhœa,

Jadassohn shows that in 87·7 per cent. the posterior was involved."

"Litzel's 53 cases of seven and ten weeks' duration, in only four the disease remained localised to the anterior urethra" (both quoted by Taylor).

"It may be assumed that in about 90 per cent. of all cases of gonorrhœa the posterior urethra is involved in the inflammation (White and Martin).

It behoves us, then, to encourage all patients to come for treatment in the early stages. This is the desirable period, and it should not be allowed to slip by without a determined effort being made to check it, and that its arrest is not difficult is well known to those who practise the irrigation treatment of this disease. It must not be forgotten that a first acute attack of gonorrhœa may spread to the posterior part with great rapidity, and that some infections, especially second and subsequent ones, may spread through the entire urethra without the subject being aware of the fact that he has an infection. It will be instructive to illustrate these varieties. A gentleman, æt. 27, came under my observation in October last. He had a first acute attack of gonorrhœa which began exactly sixty hours before. The infection took place four days prior to that. After washing out the anterior urethra very carefully with a pint of warm sterile water, by the method to be presently described, the urine was dull from the presence of mucus and some pus. The posterior urethra was already invaded. Being unable to keep at rest

irrigations were not undertaken. He developed an acute prostatitis and was subsequently laid up for some weeks.

A medical man, whose previous (second) attack of gonorrhœa, by the way, six years ago, was aborted with silver nitrate on the second day of the discharge, came with a slight mucous secretion, slight heat on urination, and puffy meatus of twelve hours' duration. No intercourse for twelve days. His attention was first attracted to the part by the presence of a small pea-like nodule under the urethra near the frænum, which was an inflamed Littré's gland. He was under the impression that a small calculus had lodged there. After washing the anterior urethra thoroughly with a pint of warm sterile water some filaments in the urine showed invasion of the posterior urethra. He was not the subject of a chronic urethritis. No posterior irrigations were undertaken. Only after several examinations of the discharge could a few gonococci be found (Eastes). There were numbers of other micro-organisms. This was a double infection. He subsequently developed a prostatitis and the bacteriological cultivation and examination of the expressed prostatic discharge showed *B. coli* in pure culture. It is noteworthy that in this case, as in the next, urethroscopic examination showed that the glands of Littré were extensively affected, even extending into the bulb, and it is well known that this condition takes months to subside.

With regard to the infecting micro-organism no great distinction need be made in considering the suitability for abortive treatment. The non-gonococcal infections, while they do not usually occasion so acute an inflammation as the gonococcal are often more difficult to cure. This is why every precaution should be taken to prevent other microbes from entering the urethra in the wake of the gonococcus. In this connection the following case, which was a first attack, of non-specific urethritis, is well worth recording, as first attacks of this are rare :

A gentleman, æt. 25 years, who never had a previous urethritis, recently came under treatment on the fourth day of a slight discharge. Contact abroad seven days before the discharge appeared. Irregular irrigations kept the discharge in abeyance only. The posterior urethra was not invaded. On the seventeenth day a urethroscopic examination was made, and the glands of Littré were found to be extensively affected.

In this case the *Staphylococcus albus* was found in pure culture. Mr. Eastes, of the Laboratories of Pathology and Public Health, and Dr. R. W. Allen assisted me in the cultivation and the bacteriology of the discharge in these cases, and the latter refers to the last case in his book on opsonic treatment.*

No strong measures should be undertaken in

* 'The Opsonic Method of Treatment,' H. K. Lewis, 1907.

these cases of affection of Littré's glands. The blandest of injections with an occasional anterior irrigation of weak permanganate is all that is necessary. Most of them recover perfectly in time, although they may take many months in doing so. It will be found that in the small percentage of cases which do not recover with irrigations, either the glands of Littré or the Morgagnian lacunæ have become affected at an early stage. A good example of the latter was in a man, æt. 40 years, with a first attack, where irrigations failed to cure, although they were successful in confining the disease to the anterior urethra. Urethroscopy on the thirtieth day showed one dropsical gland of Littré and several swollen pus-secreting lacunæ of Morgagni. Irrigations had no effect on these, nor had Kollmann's dilators gently applied and followed by irrigations. They were subsequently cured by a new method which I have devised, of inserting into each lacunæ a probe tipped with caustic in the air-distended urethra, under control of the eye. A description of this instrument, with the indications for its use, is about to be published. It is being made by Messrs. Down Bros., and is used with the aëro-urethroscope.

When a patient presents himself for treatment, after shortly going into the sexual history especially with reference to previous attacks of gonorrhœa and syphilis and their date, he is questioned as to when he had the exposure and as to the length of time that has elapsed since the very first sign of

the disease. He should not have urinated for an hour or two. Observe if there is any evident discharge, if not gently press the terminal inch and see if any can be expressed. Microscopically examine any secretion, but the treatment need not necessarily be deferred for this. Having the irrigator ready with two pints of sterile water at a temperature of 98° F. and at the usual height of five or six feet from the penis, wash out the terminal two inches of the urethra with half a pint, the patient compressing the penis at the proper spot. Wash out now the next two or three inches, the organ being grasped by the patient with the thumb and one finger behind the scrotum and as near to the pubic arch as possible. After this, wash out the bulb by the ordinary method of an anterior irrigation (*q.v.*) with a gentle pressure at first to avoid forcing any fluid and discharge into the posterior urethra, for this would vitiate your diagnosis. While increasing the pressure and ballooning the urethra allow the latter to empty itself completely by removing the irrigator five or six times during the flushing-out process. The circulation of the fluid in the far end of the bulb is very imperfect, and it is astonishing what care is necessary to remove all the shreds of discharge from it when affected. Do it thoroughly, as it is a most critical proceeding bearing on the diagnosis and treatment. Use no catheter, back-flow or otherwise, as nothing equals a proper flush out from the meatus with an irrigator.

Now let the patient urinate into a clean glass free from bits of cotton. The presence or absence of filaments in these washings and the clearness and freedom from shreds of the urine give roughly the necessary information as to the extent of the disease. I say roughly, because in the initial stages of the inflammation only a slight cloudiness may be observed, and this may be easily missed. If there are visible phosphates in the urine add acid to clear, but do not be deceived by any milkiness that the acid produces from the presence of the products of sandal oil, copaiba, etc., in the urine. One should be satisfied that the case is not a relapsed gonorrhœa, for these patients often come with the idea that a fresh infection has occurred. These generally show filaments in all the washings and often in the urine also, and the discharge is apt to appear the day following the intercourse. One irrigation will often suffice to apparently cure these cases, but the latent disease remains.

Under no circumstances do I trust to the two-glass test. It is a most unscientific method. Posterior invasion can be diagnosed perhaps twenty-four hours earlier by the wash-out test than by the two-glass. This is of the utmost importance in cases where the patient is prepared to have posterior irrigation in the event of this part becoming affected. There need be no fear of untoward results if posterior irrigations are undertaken in the initial stage of the inflammation of this part, pro-

vided that the patient can keep at rest and that a little cocaine is used to prevent spasm and injurious pressure. Again, in slight chronic superficial affections of the posterior urethra the first flush of urine removes with it all the filaments, as anyone can prove for himself by performing an anterior wash-out and having the urine passed into two glasses. The first glass may contain all the shreds.

The abortive method.—Assuming, then, that the patient comes within a few hours of the initial symptoms, after the washing-out process has been gone through, and you are satisfied there is nothing beyond two inches, inject 1 per cent. silver nitrate solution into the terminal one and a half or two inches of the urethra—(an eye dropper is a convenient instrument)—letting this out and repeating the process six or eight times and taking one or two minutes over it. The patient grips the penis at the proper place to prevent the solution going further. It is well, also, to "manipulate" thoroughly, but not roughly, the urethra from the outside while holding the solution in to assist its penetration into any duct or lacuna. This is why this method should be adopted in preference to the application of silver through the urethroscopic tube. If the disease were more than a few hours old then it depends on the acuteness, as shown by redness, œdema, and irritation, whether the silver process should be undertaken or not. In first acute attacks after twelve hours, and always if in

doubt, the silver should be omitted. If quite subacute, especially if not a first attack, then silver may be applied up to thirty-six or even forty-eight hours from the beginning of the symptoms, provided there are no shreds beyond the part intended for treatment. In these cases two to two and a half inches of the urethra may be treated with a 1 or 1½ per cent. silver nitrate solution, and immediately followed by an irrigation of the whole anterior urethra with two pints of a 1 in 2000 permanganate solution. Rest should be enjoined after this and urination deferred for three or four hours. Twelve hours or so after this treatment permanganate irrigations should be commenced, and any discharge carefully examined to ascertain whether or not the silver process has been successful, because, if not, irrigations must be continued systematically until no more gonococci are found. It is not unusual for one strong permanganate irrigation to clear up the case where gonococci have been found after the silver process, and on the other hand many irrigations may be necessary. Ten drops of a 4 per cent. β-eucaine lactate solution may be used to anæsthetise the anterior part of the penile urethra (cocaine hydrochlorate precipitates silver salts, forming an insoluble chloride). Never apply the silver nitrate solution to the whole anterior (bulbo-penile) urethra. If it fails to arrest the disease it undoubtedly favours its spread backwards.

Irrigation by the Janet method.—This is done

with permanganate of potash solution of varying strength, and the force necessary to flush out the urethra is obtained by raising the reservoir to a certain height, usually 5 or 6 feet from the penis. The tension in the urethra is obtained by rhythmically obstructing the outflow therefrom with the finger and thumb of the left hand as will be explained later. The strength of the solution varies between 1 in 1000 and 1 in 5000 for anterior irrigations, and the quantity 3 pints. My favourite formula is 3 pints of 1 in 1500 at a temperature of 105° to 107° F., and a height of 6 feet for a subacute case and administered once daily. For a very acute case half this strength given twice daily for 3 or 4 days, then the stronger solution once daily. Owing to the varying behaviour of different urethræ and the idiosyncrasy of the patient it is impossible to lay down definite rules for the guidance of the surgeon. The best that can be done is to generalise and to leave some of the details to his judgment. An "attack of gonorrhœa" conveys the idea to some that there is one formula to meet it. Nothing can be further from the truth. Pure routine without the proper appreciation of small signs and symptoms will lead to but indifferent success. Let the beginner therefore undertake only subacute or chronic cases until he is sufficiently familiar with the details of irrigation to undertake a hyper-acute case. I sometimes have coal "suitable for all purposes," but in the kitchener it burns furiously while in my

dog-grate it burns feebly enough. Equally variable will be the effect of your favourite 1 in 1500 solution of permanganate in different urethræ. I will therefore not be tempted to give a set table of strengths, but merely state what my practice is for anterior irrigation.

(1) Hyper-acute cases, 1 in 2000 to 1 in 4000 twice daily for 3 or 4 days, then once daily with 1 in 1500 to 1 in 2000.

(2) Subacute cases, 1 in 2000 to 1 in 3000 twice daily for 3 or 4 days, then once daily with 1 in 1000 to 1 in 1500.

(3) Painless cases, 1 in 1000 to 1 in 1500 daily.

Pain and œdema are the chief indications for reducing the strength. In acute cases pain after an irrigation is sometimes considerable, but should not be more than a slight smart at the first urination, which is always deferred for 3 or 4 hours after the irrigation. If pain is excessive reduce the strength. Again, where strong solutions are used owing to great anxiety on the part of the patient for a rapid recovery the serous discharge may rarely become blood-stained. Reduce the strength at once or use boric acid solution until this disappears.

Do not use a strong cocaine solution in these cases, because absorption may be rapid. Ten to 20 drops of a 1 per cent. cocaine hydrochlorate solution or 4 per cent. β-eucaine lactate held in for a minute or two would tide over the actual irrigation. Do not anæsthetise the region of the bulb,

as this facilitates the passage of the fluid into the bladder. Always treat a highly inflamed and tender urethra with the greatest possible gentleness. Any traumatism beyond what is actually required for its proper flushing out will, without doubt, delay recovery. This is why the closing of the meatus with the finger and thumb to obtain the tension in the urethra is to be preferred to blocking it with the nozzle. After an anterior irrigation ask the patient to urinate if he has any distinct desire to do so in case some of the solution may have entered the bladder.

If the patient is able to pay only irregular visits for irrigation he may also use the permanganate thoroughly three or four times daily with a hand syringe.

In cases where the inflammation has spread to the posterior urethra and complete rest is out of the question, irrigate the anterior occasionally with quite a weak solution in case it enters the posterior part and irritates it.

Do not hesitate to cease irrigations abruptly. The gonococcal infection may terminate very suddenly (unlike the other infections). Other micro-organisms (except in double primary infections) do not get a footing in a urethra that is under active irrigation treatment. Request the patient to come if the least opaque discharge shows itself the first thing in the morning. Discourage the patient from constantly stripping the organ to look for discharge. Give some cover glasses with

directions how to place a little of the discharge on them should any show. The microscope must be in constant use in these cases. When recovery is doubtful the patient's visit should be in the early morning before urinating. A persistent bead of pus in the morning, occurring during irrigations, is highly suggestive of an affection of the lacunæ, or of some minute canal, or of suppuration of a Littré's gland. It should be borne in mind that some cases of gonorrhœa are very easily cured by almost any form of local treatment, and especially by irrigations, and no general conclusions should be drawn from single cases. The epithelium of a urethra that has suffered from a prolonged attack or from many attacks becomes changed and hardened, and is less easily penetrated by the gonococcus. In fact in old cases where much fibrous sclerosis has taken place the columnar epithelium is converted into the squamous variety.

A gentleman, æt. 26 years, who had been under my care two years before for a prolonged gonorrhœa and who had recovered completely, came, two or three weeks ago, having a free, painless discharge of five days' duration. Intercourse up to the day of the discharge. The specimen was crammed with gonococci. Many heavy flakes were washed out even from the bulb. There was nothing from the posterior urethra. One irrigation of three pints of 1 in 1500 permanganate at a temperature of 110° F. and a height of six feet cured the case. As the irrigation was painless the urethra was

"ballooned" as much as possible and the solution used warmer than usual. There were subsequently no filaments in the morning urine, and cohabitation and alcohol were resumed a few days afterwards. Immunity may play a part in these cases.

The most noticeable feature in cases that come under treatment after having passed through the hands of the family practitioner, is the fact that the least deviation from the ordinary manner of infection or the unclassical way in which the symptoms developed is sufficient to cause him to pronounce the case non-gonococcal. This happens with such astonishing frequency that it is well to direct attention to it. Most of us have seen cases where it has required a month's cohabitation or more to infect the male urethra. That the gonococcus (? or that particular strain) may become almost inert to the particular urethra or female genital organs in which it has long been resident is well known. This is sometimes seen in husband and wife who are apparently quite well, but the interloper finds out to his sorrow how deceptive appearances may be!

It is exceedingly difficult to find the gonococcus in the female in old cases. It is almost useless to request the infecting woman to consult her medical adviser with the object of throwing light on the nature of the infection conveyed. The answer is almost always the same—that the gonococcus cannot be found. This diplococcus probably descends from the upper reaches only during the menstrual

flow, which leads to further confusion, the surgeon saddling the ordinary discharge with the cause of the infection instead of the gonococcus.

A gentleman left his mistress in charge of another man while he was away. This man contracted a first gonorrhœa. As all three were astonished, the woman was examined by three eminent specialists. All said she was free from gonorrhœa. I invited the first man to see me, and while protesting that he was quite well he had many filaments in his urine, and a milky discharge could be expressed from his urethra. Although this case is not conclusive evidence it is highly suggestive of a residual gonorrhœa in the man and woman.

I think that gynæcologists are more to blame than the genito-urinary surgeon for the prevalence of gonorrhœa. It is true that they receive no assistance from women in the matter. Women are so accustomed to discharges that they will harbour for years an unsuspected gonorrhœa. They are always highly indignant if such a possibility is suggested, even when you know that infection has been conveyed.

The incubation period is another pitfall in the question of diagnosis. I have known it as brief as thirty-six hours in a first case. On the other hand, I have known it to be prolonged for a month in a first case. A fortnight is by no means unusual. The following case is one of twenty days' duration: An officer who had recently returned from the East Coast of India came to me with a free pain-

less discharge of six weeks' duration. The specimen showed countless gonococci (Allen). This was his first attack. On January 30th he dismissed his mistress and went up country, constantly riding and taking active exercise, and taking a little alcohol in the usual way. On February 19th, two days before his return, a stickiness with a little painless discharge appeared at the meatus. There had been no intercourse since January 30th. The surgeon thought the case could not possibly be one of gonorrhœa.

It is of the utmost importance to grasp thoroughly the theory of irrigation as well as to pay the greatest attention to the few small details necessary for its successful practice. Although very simple and easily explained yet some essential feature must have been missed by those who have tried the method and found it wanting.

Technique of irrigation.—The irrigator which goes under my name is very simple and is the one used at St. Peter's Hospital. It consists of a piece of barometer glass tubing about five inches long which passes through a rubber cork, which in turn plugs into a glass cup or shield which catches the spurting fluid on its return from the urethra. The glass nozzle for the meatus fits on to one end of the glass stem and the rubber tubing from the reservoir on to the other end. It can easily be taken to pieces for boiling. The apparatus rests, during an irrigation, on and between the tips of the third and fourth fingers of the right hand, while

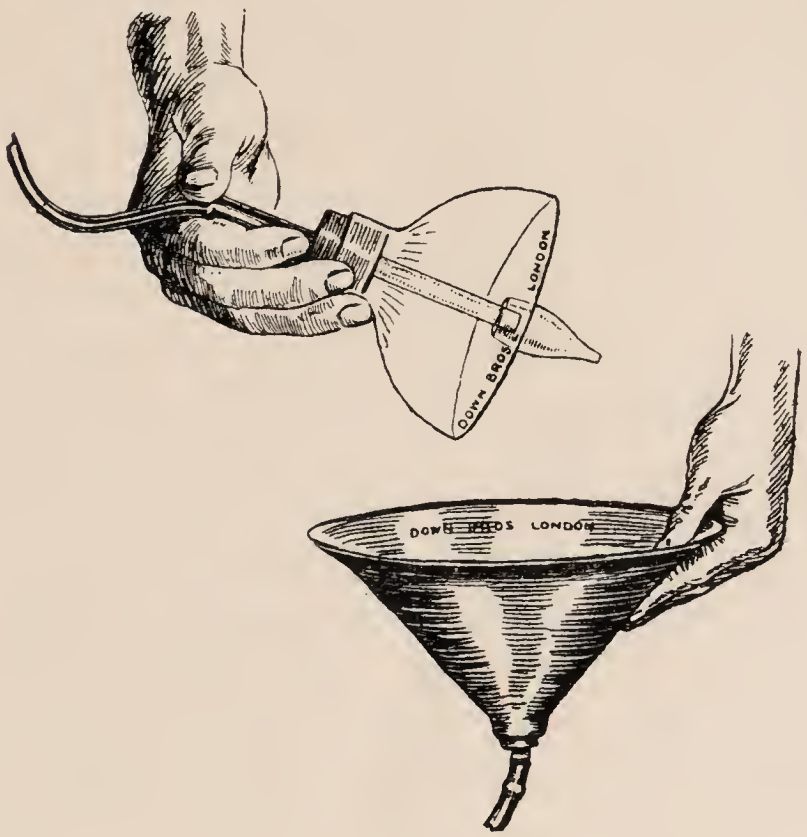
the outer end of the glass stem is grasped between the thumb and the middle of the forefinger. Reference to the illustration will explain this better than words.

The thumb and forefinger not only steady the apparatus but also control the flow by compressing the rubber tube partially or completely as may be required. This is exercised only at the beginning of an irrigation, when gentleness is necessary and when the glans is being cleansed, or when the stream is stopped altogether, otherwise no compression of the tube is necessary. The tension in the urethra (ballooning) is obtained, not by altering the height of the reservoir, but by partially or completely obstructing the return flow from the urethra, by compressing the meatus rhythmically with the forefinger and thumb of the left hand above or below the point of the nozzle once, twice, or three times to the second according to the capacity of the canal and the size of the bore in the nozzle. An irrigation, therefore, consists in a rapid filling and emptying of the urethra.

The glass nozzle is detachable and should have a bore which admits a No. 9 F bougie. An unsatisfactory flush is obtained with anything smaller. The operator stands on the right and a little in front of the patient. The penis is steadied between the middle and ring fingers of the left hand. This leaves the thumb and forefinger free to regulate the outflow. The inflow must be in the proper axis of the urethra. With the patient standing up or

sitting on the edge of a chair, the direction must be slightly downwards as well as backwards, otherwise the stream will impinge on the roof of the canal and cause much soreness at one spot.

It is well also to move occasionally the tip of the glass nozzle from the lower sulcus of the meatus



to the upper, the meatus being compressed by the finger and thumb above or below as the case may be. The nozzle must be removed for boiling after each case

The reservoir should be of three pints' capacity and raised five or six feet from the penis for anterior, and four or five feet for posterior irrigations. The clip on the tube from the reservoir

should be such as can be manipulated easily with one hand. A large funnel with rubber tube and held by the patient catches and conducts the waste fluid away. Water should be run through the apparatus immediately after use. A strong solution of oxalic acid will remove all permanganate stains.

As to the local action of the permanganate it is difficult to explain although easy to theorise. Its effect is to a great extent mechanical, and with the stronger solutions slightly caustic also (which is a phase of the mechanical). The mucous membrane is stained and rendered dry, dull, and inelastic, as I have often verified with the urethroscope. It is thus converted into an unsuitable soil for the growth of the gonococcus. Probably excess of toxins formed on or near the surface interferes with phagocytosis more than does the chemical. In any case any gonococci under the mucous membrane appears to be very easily disposed of. But the gonococcus clings very closely to the mucous membrane itself and its lacunæ, and if it extends deeper is often associated with one of the more deeply placed glands of Littré.

I have never had evidence of the entrance of the gonococcus or its toxins into the general circulation during anterior irrigations (the posterior not being involved). Frequently previous attacks have been followed by rheumatism, which does not recur during subsequent infections if irrigated. One of my series of twenty cases had a bad attack of iritis and rheumatism, which laid him up for six

weeks during his previous gonorrhœa two years before. No relapse followed the present attack, which was confined to the anterior canal by irrigations.

A patient who was recently under me for a second gonorrhœa which had already involved the posterior, had a mild double conjunctivitis with a little muco-purulent discharge in the corner of each eye. No gonococci could be found in this discharge. He had just such an attack with his first gonorrhœa. It looks as if the conjunctiva was assisting the urethral mucous membrane to get rid of the toxins.

A short analysis of the last twenty consecutive cases of fresh urethritis in private practice, who came in the early stages while the infection was limited to the penile or bulbo-penile urethra, will be sufficient to illustrate the influence of irrigations in controlling the spread of the disease.

In nineteen cases the inflammation did not reach the membrano-prostatic urethra. In one the disease spread to this part from interruption of treatment owing to holidays.

Of these cases six were first attacks.

Six were acute, nine subacute, and five were painless.

The incubation period varied between two and nine days. At the first visit the discharge had been in evidence from twelve hours to five days.

The nitrate of silver process was adopted in seven of the cases.

Six were aborted in one day. Five others recovered within one week. The longest was twenty-four days in recovering. This case, which was sent to me by Janet, of Paris, had already received a couple of irrigations before I saw him. He was probably cured in eighteen days, but, as is often the case, at the patient's request there are several unnecessary irrigations at the end "to make sure" that recovery is complete.

One became chronic and was subsequently cured by means of the urethroscope. One left for India uncured (the non-gonococcal case before mentioned). In one case, which was probably non-specific, a little serous discharge persisted owing to a phosphaturia. One case of gonorrhœa was peculiar in that it was probably contracted from the seat of a water closet—a medium usually reserved for the members of a certain calling. He had a mild attack thirty years before which recovered perfectly. His mistress left town on business on October 10th. Seven weeks after, on November 28th, a gonorrhœa started. It appears that the valet, whom I saw, had an acute first attack and used the same closet. The man had no doubt himself that this was the source of his infection. He recovered rapidly and had only nine irrigations in all.

When no more secretion can be expressed from the terminal inch of the urethra on rising in the morning, and the meatus is not glued, and there are no filaments in the urine, the case can be

regarded, tentatively, as having recovered. Careful observation must, however, be kept up for another week or so, as any injurious influences which tend to weaken the resisting power of the urethral mucosa, such as alcohol, excessive exercise or intercourse, may enable any semi-moribund gonococci that happen to be lurking in the recesses to take on a new lease of life. This is exactly what occurred in the last case. Alcohol and a long walk in the evening, which was done expressly to test the cure, caused a minute bead of pus, containing gonococci, to appear in the morning, two or three days after apparent complete recovery. One strong irrigation, however, finally disposed of the disease.

In a subject of chronic filaments in the urine it is not so easy to say when recovery from a fresh attack takes place. The microscope will be of great assistance, and the urethroscope will be of service if the surgeon is thoroughly accustomed to its use.

ADLARD AND SON, IMPR., LONDON AND DORKING.